

LISTING OF CLAIMS

1. (original) A digital peak discriminator, comprising:
 - (a) a peak register connected to receive a discrete pulse signal at its data input;
 - (b) a subtractor connected to receive said discrete pulse signal at its adding input;
 - (c) said peak register connected so that its output is an input to the subtracting input of said subtractor and is applied to the data inputs of maximum and minimum peak value latches;
 - (d) the output of said subtractor is connected so that its output provides inputs to a comparator and to an exclusive OR gate;
 - (e) said exclusive OR gate is connected so that its output is applied to the enable input of said peak register;
 - (f) a noise threshold digital value is applied to one of the inputs of a data multiplexer and to the input of a negating and scaling unit, the output of which negating and scaling unit is applied to the other input of said data multiplexer;
 - (g) said multiplexer is connected so that its output is an input to said comparator;
 - (h) said comparator is connected so that its output is a data input to a flip-flop;
 - (i) said flip-flop is connected so that its output is applied to the selecting input of said data multiplexer, to an input of said exclusive OR gate, and to the latching inputs of said maximum and minimum peak value latches, and provides a peak detect signal.
2. (cancelled)

3. (currently amended) A method of operating a peak detector, as defined in Claim ~~[[2]]~~ 10, wherein said step (c) further comprises: detecting said local maximum or local minimum with threshold.
4. (currently amended) A method of operating a peak detector, as defined in Claim ~~[[2]]~~ 10, wherein said step (c) further comprises: detecting said local maximum or local minimum with hysteresis.
5. (currently amended) A method of operating a peak detector, as defined in Claim ~~[[2]]~~ 10, wherein said step (c) further comprises: tracking either rising or falling portions of said input signal.
6. (currently amended) A method of operating a peak detector, as defined in Claim ~~[[2]]~~ 10, wherein said step (c) further comprises: detecting maximum or minimum of said input signal by switching the mode from tracking maximum to tracking minimum or vice versa.
7. (original) A method of operating a peak detector, as defined in Claim 6, wherein: switching tracking modes includes comparing either maximum or minimum threshold to the difference of the input signal and the tracked peak value.
8. (original) A method of operating a peak detector, as defined in Claim 6, wherein: switching tracking modes includes switching from tracking maximum or tracking minimum to tracking minimum or tracking maximum when the absolute value of the difference between the maximum or minimum threshold and the difference between the input signal and the tracked peak value is greater than

the maximum or minimum tracking threshold.

9. (original) A method of operating a peak detector, as defined in Claim 6, further comprising: generating a peak detect signal and storing the value of said peak detect signal as maximum or minimum value at the point of transition from tracking maximum to tracking minimum or vice versa.

10. (new) A method of operating a peak detector, comprising the steps of:

- (a) providing a peak detector for an input signal having a noise threshold as well as discrete pulses;
- (b) applying said input signal to said peak detector; and
- (c) using said peak detector to detect local maxima and local minima of said input signal without detecting local maxima or minima attributable to noise alone when superimposed upon said input signal.

11. (new) A method of tracking peaks in an input signal by means of a tracking system that can be in either a state for tracking maxima or input signal or a state for tracking minima of said input signal, said method comprising the steps of:

- (a) tracking said maxima of said input signal, continuously comparing the values of said maxima with the values of said input signal;
- (b) changing state to state for tracking minima only if and when difference between said tracked values of maxima and said values of said input signal is greater than a predetermined threshold;
- (c) simultaneously with said change of state, storing said maximum value of said input signal in a maximum holding register;
- (d) tracking said minima of said input signal until difference between said tracked values of minima and said values of said input signal are greater than a predetermined threshold; and
- (e) changing the state to state for tracking maxima, and simultaneously with said change of state, storing said minimum value of said input signal in a minimum holding register.